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From: "Moore, David (ECY)" <DMOO461@ECY.WA.GOV>
To: Brian Nickel/R10/USEPA/US@EPA
Delivered Date: 06/14/2010 02:44 PM PDT
Subject: RE: New model results from LimnoTech and Idaho dischargers

Brian,
When you have certified results, we will review and provide comments. I'm guessing there won't be much change when they are certified. Correct?
Dave
-----Original Message-----
From: Nickel.Brian@epamail.epa.gov [mailto:Nickel.Brian@epamail.epa.gov]
Sent: Monday, June 14, 2010 1:32 PM
To: Moore, David (ECY)
Cc: Cope.Ben@epamail.epa.gov; Ross, James D. (ECY)
Subject: New model results from LimnoTech and Idaho dischargers
Dave:
Attached are the anticipated new modeling results from Dave Dilks at LimnoTech. The Idaho dischargers worked together on this. Relative to the TMDL assumptions, they propose to decrease Coeur d'Alene's BOD concentration from 5 mg/L to 4 mg/L (maximum month) and increase all of the Idaho dischargers' ammonia concentrations from 1 mg/L to 4 - 6 mg/L. This proposal contrasts with LimnoTech's earlier "increased ammonia" run (see attached September 1, 2009 memo) in two important ways: First, they reduced another oxygen-demanding parameter (BOD in this case) in an attempt to offset the DO impact of the increased ammonia, and second, the magnitude of the ammonia increase was reduced (proposed limits are 4 - 6 mg/L, not 8 mg/L).
LimnoTech ran the model twice for this memo. One run produced DO results that were slightly improved (higher DO) on average relative to the TMDL assumptions, but a "replication" run using identical inputs produced slightly lower DO relative to the TMDL assumptions. In any case, the average DO was within 0.007 mg/L of that resulting from the TMDL assumptions.
Below is some e-mail traffic where Dave answered some questions I had. Note that the numbers in Table 2 of the memo were transposed; Dave provided a corrected table in his e-mail. Regarding the difference between Table 7 of the final TMDL and which values were included in LimnoTech's averaging, I re-calculated the averages using Table 7's shaded cells (indicating where and when Avista has a DO responsibility) and I agree with Dave that this doesn't change the outcome significantly (see attached spreadsheet).
We would not act on this information until we were able to verify LimnoTech's results. However, if we find that the results are similar to those of LimnoTech's "original" run (i.e., there is a slight improvement in DO, on average), I think we could make a reasonable

argument that these alternative limits "ensure that the total dissolved oxygen depletion resulting from (the Idaho) dischargers is no greater than that shown in (the Idaho only source assessment scenario results)," which will ensure compliance with Washington's WQS for DO (see the final TMDL at Page 35).
Please give me a call to discuss this information once you've had a chance to look over it.
Thanks,
Brian Nickel, E.I.T.
Environmental Engineer
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http://epa.gov/r10earth/waterpermits.htm

(See attached file: Alternate_Idaho_limits_2_061010.pdf)(See attached file: IdahoSens_090209.pdf)(See attached file: Alternate_Idaho_limits_results_Avista_Resp_only.xls)
----- Forwarded by Brian Nickel/R10/USEPA/US on 06/14/2010 11:59 AM -----
From: "Dave Dilks" <ddilks@limno.com>
To: Brian Nickel/R10/USEPA/US@EPA
Cc: Ben Cope/R10/USEPA/US@EPA, "Clark, Dave" < Dave.Clark@hdrinc.com>, < sidf@cdaid.org>
Date: 06/12/2010 06:26 AM
Subject: RE: Question about June 10th memo
Brian
I see the shading discrepancies you are referring to. I don't have the full calculation spreadsheet available right now to give you an exact answer but, working with the numbers in the memo, any discrepancy in calculations should be on the order of tens of thousandths of a mg/l. We'll certainly make sure that the exact numbers are in there before anything gets finalized, but the memorandum can reviewed with the expectation that the numbers in there will change very little.
Dave
-----Original Message-----
From: Nickel.Brian@epamail.epa.gov [mailto:Nickel.Brian@epamail.epa.gov]
Sent: Friday, June 11, 2010 6:40 PM
To: Dave Dilks
Cc: Cope.Ben@epamail.epa.gov; Clark, Dave; sidf@cdaid.org
Subject: RE: Question about June 10th memo
Dave:
Thanks for the prompt reply. I have one more question. It appears that the shaded cells in the tables on Pages 4 and 5 (ostensibly those cells that were considered in the averaging) do not match the model segments and times where Avista has a DO responsibility (in other words, where and when the DO sag under the TMDL scenario is at least 0.2 mg/L) according to the final TMDL. For example, for July 1-15, your table has segments 174-188 shaded, whereas, according to the final TMDL, Avista only has a responsibility in segments 176-188, for that two-week period.

Could you please explain the discrepancy?
Thanks,
Brian Nickel, E.I.T.
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From: "Dave Dilks" <ddilks@limno.com>
To: Brian Nickel/R10/USEPA/US@EPA
Cc: <sidf@cdaid.org>, Ben Cope/R10/USEPA/US@EPA, "Clark, Dave" < Dave.Clark@hdrinc.com>
Date: 06/11/2010 02:34 PM
Subject: RE: Question about June 10th memo
Brian:
1. Model inputs were set up consistent with the TMDL.
2. The values in Table 2 are transposed, while the body of the text is correct. Table 2 should read:

Simulation	Incremental Impact on Straight Arithmetic Average (mg/l)	Incremental Impact on Volume-Weighted Average (mg/l)
Original	0.0016	0.0035
Replication	-0.0057	-0.0066

Let me know if you or Ben have additional questions.
Dave
-----Original Message-----
From: Nickel.Brian@epamail.epa.gov [mailto:Nickel.Brian@epamail.epa.gov]
Sent: Friday, June 11, 2010 5:07 PM
To: Dave Dilks
Cc: sidf@cdaid.org; Cope.Ben@epamail.epa.gov
Subject: Question about June 10th memo
Dave:
I just read your June 10th memo, and I've sent it to Ben Cope (who is out today). We may have more questions once Ben gets back.
Based on my initial read, I have two questions:
1. The memo refers to ammonia and CBOD5 "limits." Were the model inputs set equal to 71% of the "limits," or, equivalently, were the model inputs calculated by dividing the "limits" by 1.4, consistent with to the model runs supporting the TMDL?
2. The paragraph discussing the results (Page 2) says that "the alternative Idaho discharge scenario was predicted to increase (DO) by 0.0016 to 0.0035 mg/L for the original simulation. The replication

showed a decrease in (DO) of 0.0057 to 0.0066 mg/L." These statements do not match Table 2, which shows that the original simulation showed a DO increase of 0.0016 mg/L using a straight arithmetic average, and a 0.0057 mg/L decrease using a volume-weighted average, and that the replication simulation showed a 0.0035 mg/L increase using a straight arithmetic average, and a decrease of 0.0066 mg/L using a volume-weighted average.

In other words, according to the table, the question of whether the alternative scenario results in an increase or a decrease in DO depends on how you average the results, whereas the narrative states that this depends on which simulation you're referring to (the original or the replication). Could you please clarify the results?

Thanks,

Brian Nickel, E.I.T.
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